Message Text

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NASA/SA/WSLOGAN
NASA/S/NWHINNERS
NASA/I/LEJONES (DRAFT)
NASA/I/WGBASTEDO (DRAFT)
EUR/NE:DJDONCHI
EUR/NE:JSHUMATE
EUR/NE:SCSHALLER
EUR/WE:BMCKINLEY
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TO AMEMBASSY ATHENS PRIORITY
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AMEMBASSY OTTAWA PRIORITY
AMEMBASSY LONDON PRIORITY
AMEMBASSY PARIS PRIORITY
FROBISCHER AB CANADA PRIORITY
NAVSTA KEFLAVIK PRIORITY
MILDENHALL AB PRIORITY
SONDRESTROM AB PRIORITY
MALSTROM AFB PRIORITY
INFO AMEMBASSY BONN PRIORITY
AMEMBASSY COPENHAGEN PRIORITY
DOD PRIORITY
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ATHENS PASS TO RICHARD BENEDICK, PARIS PASS TO NASA REP
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E.O. 11652:N/A

TAGS: TSPA

SUBJECT: PROJECT PORCUPINE -- NASA REQUEST FOR AIRCRAFT
CLEARANCE

REF: (A) STATE 21328, JANUARY 28, 1976
(B) STATE 41660, FEBRUARY 21, 1976
(C) ATHENS 2015, MARCH 4, 1976

1. AS PART OF NASA/GERMAN COOPERATIVE PROGRAM (PROJECT PORCUPINE) NASA PLANS SECOND EXPEDITION TO GREECE MARCH 1977. FIRST CAMPAIGN LAST YEAR WAS TERMINATED AFTER ARIES ROCKET MOTOR FAILED DURING LAUNCH.

2. PROGRAM IS TO STUDY COUPLING BETWEEN EARTH'S MAGNETO-SPHERE AND IONOSPHERE. PROJECT DIRECTED BY MAX PLANCK INSTITUT FUR PHYSIK AND ASTROPHYSIK USING U.S./GERMAN JOINTLY DEVELOPED ARIES SOUNDING ROCKET. (SEE REFTEL A AND B FOR ADDITIONAL DETAILS OF PROJECT). AFTER FAILURE OF ARIES ROCKET MOTOR, ROCKET UNDERWENT YEAR OF INTENSIVE TESTING CULMINATING IN SUCCESSFUL ENGINEERING LAUNCH DECEMBER 1976.

3. ROCKET WILL BE LAUNCHED FROM ESRANGE (SWEDEN) IN MARCH 1977 CARRYING 11 EXPERIMENTS. NASA LEAR JET AIR-CRAFT WILL PARTICIPATE IN BARIUM ION JET EXPERIMENT IN WHICH TWO CANISTERS, EACH CONTAINING A BARIUM SHAPED CHARGE, WILL BE EJECTED FROM THE SOUNDING ROCKET AND EXPLODED AT APPROX. 450 KM ALTITUDE. DUE TO IONIZATION BY THE SOLAR UV LIGHT, A VISIBLE BARIUM ION JET WILL BE FORMED. JETS WILL BE TRAPPED IN EARTH'S MAGNETIC FIELD AND WILL TRAVEL UPWARD ALONG THE MAGNETIC LINES OF FORCE UNTIL THEY REENTER EARTH'S ATMOSPHERE AT THE CONJUGATE
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POINT IN ANTARCTIC. THE JETS RAPIDLY BECOME SO FAINT THAT THEY CAN ONLY BE OBSERVED WITH THE MOST SENSITIVE OPTICAL INSTRUMENTS EQUIPPED WITH NARROW INTERFERENCE FILTERS. PLANS CALL FOR NASA LEAR JET, EQUIPPED WITH TWO OF THESE OPTICAL SYSTEMS, TO BE BASED IN ATHENS, GREECE, AND FLY ALONG A FLIGHT PATH THAT WILL PROVIDE CONTINUOUS OPTICAL COVERAGE OF BARIUM TRAIL AGAINST A STAR BACKGROUND FOR APPROXIMATLY FIRST 1,000 SECONDS AFTER RELEASE.

4. PURPOSE OF BARIUM EXPERIMENT TO MAP MAGNETIC FIELD LINES, STUDY GENERATION OF ALFVEN WAVES, STUDY VARIA-TIONS OF ION VELOCITY PARALLEL TO THE MAGNETIC FIELD, AND TO STUDY PLASMA DRIFTS UP TO ALTITUDES OF APPROXIMATELY 20,000 KM.

5. AIRCRAFT IS U.S. PUBLIC LAW AIRCRAFT, ASA-OWNED AND OPERATED,LEAR JET MODEL 24B, S/N 102, REGISTRATION NUM-BER N 705NA, CALL SIGN NASA 705.

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6. AIRCRAFT WILL STAGE FROM ATHENS INTERNATIONAL AIRPORT (HELLENIKON AIRPORT) FOR APPROX. THREE WEEKS COMMENCING 2 MARCH 1977. SERIES OF REHEARSAL FLIGHTS WILL BE CONDUCTED BEGINNING MARCH 6 TO ALLOW CREW TO COORDINATE FLIGHT ROUTE WITH LOCAL AIR TRAFFIC CONTROL AGENCIES AND EXPERIMENTERS TO CHECK OUT OPTICAL EQUIPMENT. AIRCRAFT WILL THEN BE ON STANDBY EVERY DAY DURING LAUNCH WINDOW (MARCH 7 - 27) UNTIL MISSION LAUNCH IS COMPLETED. LAUNCHING WILL BE MADE DURING EARLY EVENING (APPROX. 1830UT) WITH A WINDOW OF APPROX. TWO HOURS IN DURATION. PROFICIENCY FLIGHTS SIMULATING OBSERVATIONS WILL BE MADE EVERY SECOND DAY DURING LAUNCH WINDOW IN ORDER TO KEEP ALL SYSTEMS AND CREWS AT PEAK READINESS.

7. FOR MISSION AND REHEARSALS AIRCRAFT WILL FLY WESTWARD (20 MINUTES) TOWARD GENERAL AREA OF PATRAI, GREECE (ARAXOS AIRFIELD), CLIMBING TO OBSERVING ALTITUDE OF
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41,000 FEET (12.5 KM). AIRCRAFT WILL THEN LOITER AT THIS ALTITUDE UP TO 90 MINUTES IF HOLDS IN LAUNCH DIC-

TATE. AIRCRAFT WILL THEN DEPART ON HEADING OF 280 DEGREES AND VIDEO RECORD BARIUM ION TRAILS AS THEY MOVE SOUTHWARD. ROCKET LAUNCH WILL RELEASE TWO BARIUM ION CLOUDS SEPARATED IN TIME BY 150 SECONDS. THEY WILL BE OBSERVED FROM THE HORIZON TO 65 DEGREES FOR TOTAL OF 1,050 SECONDS (17.5 MINUTES) DURING WHICH TIME AIRCRAFT WILL HAVE TRAVELED APPROX. 122 MILES (196 KM). PLANE WILL THEN RETURN TO ATHENS OR ARAXOS AIRFIELD, PATRAI, GREECE AS ALTERNATE.

8. EXPERIMENTAL PAYLOAD CONSISTS OF TWO SEPARATE VIDEO SYSTEMS VIEWING OUT TWO STARBOARD WINDOWS. PRIMARY SYSTEM FURNISHED BY U. OF ALASKA CONSISTS OF IMAGE ORTHICON CAMERA, ASSOC. ELECTRONICS AND VIDEO RECORDER. NASA AMES RESEARCH CENTER WILL PROVIDE GYRO STABILIZED MIRROR SYSTEM (HELIOSTAT) AND INERTIAL NAVIGATION SYSTEM TO RECORD LATITUDE, LONGITUDE AND HEADING. AMES WILL ALSO PROVIDE SECOND VIDEO SYSTEM CONSISTING OF COHU ISIT CAMERA AND VIDEO RECORDER. PRIMARY SYSTEM HAS 15 DEGREES FIELD OF VIEW AND WILL SCAN FROM 25 DEGREES TO 60 DEGREES FROM THE HORIZONTAL. SECONDING SYSTEM WILL BE FIX MOUNTED WITH A 40 DEGREE FIELD OF VIEW FROM MINUS 10 DEGREES TO PLUS 30 DEGREES.

9. AIRCRAFT MAINTENANCE CONTRACTOR, NORTHROP SERVICES, INC. WILL ARRANGE WITH LOCALLY BASED AIR CARRIER TO PROVIDE AIRCRAFT SUPPORT SERVICES DURING THE MISSION.

10. COMMUNICATIONS LINK WILL BE ESTABLISHED BETWEEN LAUNCH RANGE AT KIRUNA AND AIRCRAFT BASE IN ATHENS BY COMMERCIAL TELEPHONE. NASA WILL WORK WITH LOCAL GREEK AUTHORITIES TO ARRANGE GROUND-TO-AIR LINK BY HF OR VHF RADIO BETWEEN AIRPORT AND AIRCRAFT.
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11. AIRCRAFT IS RANGE LIMITED AND WILL REQUIRE MULTIPLE STOPS ENROUTE TO AND FROM GREECE. FOLLOWING IS PLANNED ITINERARY TO GREECE. IT WOULD BE REVERSED ON RETURN. RETURN DATES ARE DEPENDENT ON LAUNCH.

LOCATION	DEPART O/A	REMARKS
MALMSTROM AFB, US	27 FEB.	REFUEL
FORT CHURCHILL, CANADA	28 FEB.	REFUEL AND RON
FROBISHER CANADA	28 FEB.	REFUEL
SONDRESTROM AB, GREENLAND	1 MAR.	REFUEL AND RON
KEFLAVIK NAVSTA, ICELAND	1 MARCH	REFUEL
MILDENHALL, U.K. (RAF)	2 MARCH	REFUEL AND RON
ROME, ITALY	2 MARCH	REFUEL
ATHENS, GREECE		STAGE

12. EACH LANDING SITE MUST BE CAPABLE OF SUPPLYING 600 GALLONS JP-4 OR JP-5 FUEL AND FUEL ADDITIVE QUOTE PRIST UNQUOTE. POWER CART CURRENT LIMITED TO 900 AMPS REQUIRED FOR STARTING ENGINES. HANGAR FACILITIES MAY BE REQUIRED AT FORT CHURCHILL, FROBISHER, SONDRESTROM AND KEFLAVIK.

13. EXPEDITION TEAM ACCOMPANYING AIRCRAFT WILL CONSIST OF APPROX. 12 MEMBERS. TWO PILOTS AND CREW CHIEF WILL BE ON BOARD DURING FERRY FLIGHTS. ALL OTHERS WILL FLY COMMERCIALLY TO GREECE.

14. AIRCRAFT AND EXPERIMENT EQUIPMENT WILL BE AVAILABLE FOR INSPECTION BY REPRESENTATIVES OF HOST GOVERNMENTS AT ANY PROPOSED LANDING SITE DURING FERRY FLIGHT AND IN GREECE.

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15. EXPERIMENTAL EQUIPMENT WILL NOT REPEAT NOT BE OPERA-

TED DURING FERRY FLIGHTS.

16. PILOT WILL FILE INTERNATIONAL FLIGHT PLANS.

17. DATA CAN BE MADE AVAILABLE TO HOST GOVERNMENTS IF REQUESTED.

18. SAME CONDITIONS AS REQUIRED AT ATHENS LAST YEAR (REF C) ACCEPTABLE. FYI: NO DATA WAS TRANSMITTED TO GOG SINCE ROCKET FAILED ON LAUNCH AND NO EXPERIMENTAL DATA ACQUIRED. END FYI.

19. FOR EACH STOP ENROUTE ATHENS: PLEASE ASCERTAIN AVAILABILITY OF FUEL AND FACILITIES PARA 12 ABOVE AND ADVISE.

20. FOR ACTION ADDRESSEES: PLEASE OBTAIN APPROPRIATE LANDING AND OVERFLIGHT CLEARANCES FOR PERIOD 27 FEBRUARY - 27 MARCH 1977 PLUS ONE WEEK. AS RETURN DATES CANNOT BE DETERMINED AT THIS TIME, PLEASE SECURE RETURN CLEARANCE IN PRINCIPLE AND ADVISE. (PILOT WILL FILE INTERNATIONAL FLIGHT PLANS.)

21. FOR PARIS; PLEASE SECURE OVERFLIGHT CLEARANCES.

22. FOR ATHENS: PLEASE SECURE LANDING, OVERFLIGHT AND STAGING CLEARANCES AND ADVISE.

23. PLEASE COPY NASA AND NASA AMES RESEARCH CENTER ON ALL REPLIES.
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Message Attributes

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Disposition Approved on Date:
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Disposition Comment:
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Disposition Event:
Disposition History: n/a
Disposition Reason:
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